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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/051,757

01/16/2002

Eric A. Durant

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06/11/2009

SCHWEGMAN, LUNDBERG & WOESSNER, P.A.

P.O. BOX 2938

MINNEAPOLIS, MN 55402

EXAMINER

FAULK, DEVONA E

ART UNIT

PAPER NUMBER

2614

NOTIFICATION DATE

DELIVERY MODE

06/11/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@slwip.com

scape@slwip.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/051,757	<b>Applicant(s)</b> DURANT, ERIC A.	
	<b>Examiner</b> DEVONA E. FAULK	<b>Art Unit</b> 2614	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-4,9-16 and 20-35 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12-16 and 27-35 is/are allowed.
- 6) ☒ Claim(s) 1-4,9-11 and 20-26 is/are rejected.
- 7) ☒ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Arguments***

1. The examiner asserts that the applicant has amended the claims and only asserts in the response that the applicant is unable to find a teaching of the recited claim language for the claims. The examiner asserts that the applicant has not properly asserted why the prior art does not read on the claimed subject matter.
2. The applicant's amendment to the claims has necessitated a new modified rejection.
3. Claims 5-8,17-19,36-43 are cancelled.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1,12,20-23,26,27,31,34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weinfurter et al. (US 6,035,050) in view of Watanabe et al. (US 6,148,274) in further view Takagi et al. (US 7,343,021).
6. Regarding claims 1,12,20-23,26,27,31 and 34, Takagi discloses an apparatus for fitting a hearing aid by it wearer, comprising:  
  
Regarding claim 20, Weinfurter discloses a hearing aid comprising:  
  
a memory having a first population (60, Figure 5; the plurality of parameter sets read on population; column 6, lines 34-39) stored therein, the first population comprising

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a plurality of parent sets (each parameter set reads on parent set), each of the parent sets having at least one parameter (each parameter set comprises hearing programs corresponding to different hearing environments, i.e. at work, listening to music at home; column 6, lines 26-30);

a toggle device for toggling between a first pair of the plurality of parent sets (keys 48 allows the user to select a hearing situation, i.e. parameter set, Figure 3; column 5, lines 1-7; column 6, lines 25-32 and 44-47);

a select indicator for selecting a preferred one set of the first pair ( keys 50 allows the user to allocate a parameter set, Figure 3; column 5, lines 5-8);

a processor (46, Figure 5).

Weinfurter discloses a plurality of parent sets and a processor.

Weinfurter fails to disclose that the processor ranks a hierarchy of the plurality of parent sets.

Watanabe discloses an optimization adjusting method that can be applied to the problem of adjusting the characteristics of a hearing aid to match the hearing characteristics of the wearer (user) of the hearing aid that uses a genetic algorithm (column 4, lines 42-65; column 6, lines 17-27; column 42, lines 8-48; ranking data is implicit to how a genetic algorithm functions). A genetic algorithm (GA) is a search technique used in computing to find exact or approximate solutions to optimization and search problems. It would have been obvious to modify Weinfurter by ranking the plurality of parent sets for the purpose of improving the hearing aid fit for the user.

Regarding claim 21, Weinfurter discloses a hearing aid comprising:

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a memory having a first population (60, Figure 5; the plurality of parameter sets read on population; column 6, lines 34-39) stored therein, the first population comprising a plurality of parent sets (each parameter set reads on parent set), each of the parent sets having at least one parameter (each parameter set comprises hearing programs corresponding to different hearing environments, i.e. at work, listening to music at home; column 6, lines 26-30);

a toggle device for toggling between a first pair of the plurality of parent sets (keys 48 allows the user to select a hearing situation, i.e. parameter set, Figure 3; column 5, lines 1-7; column 6, lines 25-32 and 44-47);

a select indicator for selecting a preferred one set of the first pair ( keys 50 allows the user to allocate a parameter set, Figure 3; column 5, lines 5-8); and

a processor (46, Figure 5).

Weinfurther discloses a plurality of parent sets.

Weinfurther fails to disclose that the processor assigns a probability of selection to the plurality of parent sets.

Watanabe discloses an optimization adjusting method that can be applied to the problem of adjusting the characteristics of a hearing aid to match the hearing characteristics of the wearer (user) of the hearing aid that uses a genetic algorithm (column 66, lines 17-27). Watanabe discloses using a genetic algorithm and assigning a probability of selection to a data set (Figure 9; column 26, line 45 -column 27, line 10). A genetic algorithm (GA) is a search technique used in computing to find exact or approximate solutions to optimization and search problems. Genetic algorithms are

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used to approximate solutions to optimization problems and are well known in the art. It would have been obvious to modify Weinfurter by applying the probability of selection techniques as taught by Watanabe for the purpose of better optimizing the hearing aid fit for a user.

Regarding the newly recited claim language, the examiner asserts that Weinfurter as modified teaches of using genetic algorithms. It is known in the art that genetic algorithms work off of populations and child sets. It is a matter of design choice as to how the genetic algorithm will work.

Weinfurter as modified teaches of using a genetic algorithm. MPEP 2114....states that while features of an apparatus may be recited either structurally or functionally, claims <directed to >an< apparatus must be distinguished from the prior art in terms of structure rather than function. Also, a claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

Watanabe as modified by Weinfurter clearly has the structural limitations of the claim and the intended use of the genetic algorithm cannot differentiate the claimed apparatus from the prior art.

Regarding claim 22, Weinfurter discloses a hearing aid comprising:

a memory having a first population (60, Figure 5; the plurality of parameter sets read on population; column 6, lines 34-39) stored therein, the first population comprising

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a plurality of parent sets (each parameter set reads on parent set), each of the parent sets having at least one parameter (each parameter set comprises hearing programs corresponding to different hearing environments, i.e. at work, listening to music at home; column 6, lines 26-30);

a toggle device for toggling between a first pair of the plurality of parent sets (keys 48 allows the user to select a hearing situation, i.e. parameter set, Figure 3; column 5, lines 1-7; column 6, lines 25-32 and 44-47);

a select indicator for selecting a preferred one set of the first pair (keys 50 allows the user to allocate a parameter set, Figure 3; column 5, lines 5-8); and

wherein the plurality of parent sets comprises at least a first, second and third set (E1-E4 are parent sets; column 5, lines 1-9).

Weinfurther discloses a plurality of parent sets.

Weinfurther fails to disclose a genetic algorithm for deciding which of the first, second and third sets becomes the first pair

Watanabe discloses an optimization adjusting method that can be applied to the problem of adjusting the characteristics of a hearing aid to match the hearing characteristics of the wearer (user) of the hearing aid that uses a genetic algorithm (column 66, lines 17-27). Watanabe discloses using a genetic algorithm and assigning a probability of selection to a data set (Figure 9; column 26, line 45 -column 27, line 10). Watanabe further teaches of rearranging an order of presentation (column 14, lines 25-30). Rearranging an order of presentation reads on deciding on which set gets presented or chosen first. It would have been obvious to modify Weinfurther by

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deciding which of the first, second or third sets become the first pair for the purpose of better optimizing the hearing aid fit for a user.

Regarding the newly recited claim language, the examiner asserts that Weinfurter as modified teaches of using genetic algorithms. It is known in the art that genetic algorithms work off of populations and child sets. It is a matter of design choice as to how the genetic algorithm will work.

Weinfurter as modified teaches of using a genetic algorithm. MPEP 2114....states that while features of an apparatus may be recited either structurally or functionally, claims <directed to >an< apparatus must be distinguished from the prior art in terms of structure rather than function. Also, a claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

Watanabe as modified by Weinfurter clearly has the structural limitations of the claim and the intended use of the genetic algorithm cannot differentiate the claimed apparatus from the prior art.

Regarding claim 23, Weinfurter discloses a hearing aid comprising:

a memory having a first population (60, Figure 5; the plurality of parameter sets read on population; column 6, lines 34-39) stored therein, the first population comprising a plurality of parent sets (each parameter set reads on parent set), each of the parent



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sets having at least one parameter (each parameter set comprises hearing programs corresponding to different hearing environments, i.e. at work, listening to music at home; column 6, lines 26-30);

a toggle device for toggling between a first pair of the plurality of parent sets (keys 48 allows the user to select a hearing situation, i.e. parameter set, Figure 3; column 5, lines 1-7; column 6, lines 25-32 and 44-47);

a select indicator for selecting a preferred one set of the first pair (keys 50 allows the user to allocate a parameter set, Figure 3; column 5, lines 5-8); and

a processor (control processing unit 46, Figure 5).

Weinfurter discloses a plurality of parent sets.

Weinfurter fails to disclose a genetic algorithm for performing one of mutation and crossover on at least one set of the plurality of parent sets thereby forming a child set.

A genetic algorithm (GA) is a search technique used in computing to find exact or approximate solutions to optimization and search problems. Genetic algorithms are used to approximate solutions to optimization problems and are well known in the art.

Watanabe discloses an optimization adjusting method that can be applied to the problem of adjusting the characteristics of a hearing aid to match the hearing characteristics of the wearer (user) of the hearing aid that uses a genetic algorithm (column 66, lines 17-27; column 4, lines 42-65; column 42, lines 8-48). Watanabe discloses using genetic algorithm and using mutation and crossover on at least one parent set (Watanabe, column 42, lines 8-48; Figures 67 and 69; a child set is implicitly

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formed). It would have been obvious to modify Weinfurter by performing crossover and mutation on the plurality of parent sets for the purpose of improving the hearing aid fit for the user.

Regarding the newly recited claim language, the examiner asserts that Weinfurter as modified teaches of using genetic algorithms. It is known in the art that genetic algorithms work off of populations and child sets. It is a matter of design choice as to how the genetic algorithm will work.

Weinfurter as modified teaches of using a genetic algorithm. MPEP 2114....states that while features of an apparatus may be recited either structurally or functionally, claims <directed to >an< apparatus must be distinguished from the prior art in terms of structure rather than function. Also, a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

Watanabe as modified by Weinfurter clearly has the structural limitations of the claim and the intended use of the genetic algorithm cannot differentiate the claimed apparatus from the prior art.

Regarding claim 24, Weinfurter as modified discloses a genetic algorithm for replacing one of the plurality of parent sets in the first population with the child set thereby forming a second population. Watanabe further discloses a genetic algorithm

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and using mutation and crossover on at least one parent set (Watanabe, column 42, lines 8-48; Figures 67 and 69). A child set is implicitly formed. The child set reads on second population. All elements of claim 24 are comprehended by the rejection of claim 23.

Regarding claim 25, Weinfurter as modified a toggle device for toggling between a first pair of the plurality of parent sets (keys 48 allows the user to select a hearing situation, i.e. parameter set Figure 3; column 5, lines 1-7; column 6, lines 25-32 and 44-47). It is obvious that the toggle device would be able to toggle between a second pair of parent sets from a second population. It would have been obvious to modify Weinfurter so that the toggle device can toggle between a second pair of parent sets in a second population for the benefit of providing more options to the user.

Regarding claim 26, Weinfurter discloses a hearing aid comprising:

a memory having a first population (60, Figure 5; the plurality of parameter sets read on population; column 6, lines 34-39) stored therein, the first population comprising a plurality of parent sets (each parameter set reads on parent set), each of the parent sets having at least one parameter (each parameter set comprises hearing programs corresponding to different hearing environments, i.e. at work, listening to music at home; column 6, lines 26-30);

a toggle device for toggling between a first pair of the plurality of parent sets and toggles between a plurality of pairs of parent sets (keys 48 allow the user to select a hearing situation, i.e. a parameter set, when the user chooses a key 48 he is toggling

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between the plurality of pairs of parent sets; Figure 3; column 5, lines 1-7; column 6, lines 25-32 and 41-47; Figure 3);

a select indicator for selecting a preferred one set of the first pair (keys 50 allows the user to allocate a parameter set, Figure 3; column 5, lines 5-8); and

a processor (46, Figure 5).

Weinfurtner discloses a plurality of parent sets and a processor.

Weinfurtner fails to disclose that the processor converges the plurality of pairs to a single solution set.

Watanabe discloses an optimization adjusting method that can be applied to the problem of adjusting the characteristics of a hearing aid to match the hearing characteristics of the wearer (user) of the hearing aid that uses a genetic algorithm column 66, lines 17-27; column 4, lines 42-65; column 42, lines 8-48). Watanabe teaches that in the genetic algorithm operations are iteratively performed until each solution vector in the solution vector set P converges to a nearly optimal solution to the problem being solved column 2, lines 37-40). Watanabe therefore discloses converging data to a single solution set. It would have been obvious to modify Weinfurtner by converging the data to a single solution set for the purpose of better optimizing the hearing aid fit for a user.

Regarding the newly recited claim language, the examiner asserts that Weinfurtner as modified teaches of using genetic algorithms. It is known in the art that genetic algorithms work off of populations and child sets. It is a matter of design choice as to how the genetic algorithm will work.

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Weinfurter as modified teaches of using a genetic algorithm. MPEP 2114....states that while features of an apparatus may be recited either structurally or functionally, claims <directed to >an< apparatus must be distinguished from the prior art in terms of structure rather than function. Also, a claim containing a “recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus” if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

Watanabe as modified by Weinfurter clearly has the structural limitations of the claim and the intended use of the genetic algorithm cannot differentiate the claimed apparatus from the prior art.

7. Claim 1-4, 9-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weinfurter et al. (US 6,035,050) in view of Watanabe et al. (US 6,148,274) in further view of Holland et al. (US 4,697,242).

Regarding claim 1, Weinfurter discloses an apparatus for fitting a hearing aid comprising:

a memory having a first population (60, Figure 5; the plurality of parameter sets read on population; column 6, lines 34-39) stored therein, the first population comprising a plurality of parent sets (each parameter set reads on parent set), each of the parent sets having at least one parameter (each parameter set comprises hearing programs

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corresponding to different hearing environments, i.e. at work, listening to music at home; column 6, lines 26-30);

a toggle device for toggling between a first pair of the plurality of parent sets (keys 48 allows the user to select a hearing situation, i.e. parameter set Figure 3; column 5, lines 1-7; column 6, lines 25-32 and 44-47);

a select indicator for selecting a preferred one set of the first pair (keys 50 allows the user to allocate a parameter set, Figure 3; column 5, lines 5-8);

a communications link adapted to connect with a hearing aid (wireless data transmission path 24; column 4, lines 50-51) and

a processor adapted to provide signals to the hearing aid to change operation of the hearing aid based on each parent set (control processing unit 46, Figure 5; column 6, lines 5-10) to allow the wearer to select one preferred set for each pair of parent sets ; column 6, lines 5-10).

Weinfurter discloses a plurality of parent sets.

Weinfurter fails to disclose that the processor is adapted to record a ranking of parent sets, assign probabilities of selection of parent sets, crossover and/or mutate at least one parent set and replace weakest parent sets with a child set.

Watanabe discloses an optimization adjusting method that can be applied to the problem of adjusting the characteristics of a hearing aid to match the hearing characteristics of the wearer (user) of the hearing aid that uses a genetic algorithm (column 66, lines 17-27; column 4, lines 42-65; column 42, lines 8-48). Watanabe further teaches of recording a ranking of parent sets (ranking data is implicit to how a

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genetic algorithm functions), assign probabilities of selection of parent sets (column 26, lines 18-32; column 27, lines 1-10), crossover and/or mutate at least one parent set Watanabe discloses using genetic algorithm and using mutation and crossover on at least one parent set (column 42, lines 8-48; Figures 67 and 69). It would have been obvious to modify Weinfurter to provide the processor the capability of recording a ranking of parent sets, assign probabilities of selection of parent sets, crossover and/or mutate at least one parent set for the purpose of improving the hearing aid fit for the user.

Weinfurter as modified by Watanabe discloses parent sets and a child set.

Weinfurter as modified fails to disclose replacing weakest parent sets with a child set. Holland teaches of crossover involving the selection of a string position at random, splitting parent classifiers at a position, and exchanging parts to form two new child classifiers which replace the weakest (lowest strength) classifiers (column 2., line 65-column 3, line 3). A genetic algorithm is a search technique used in computing to find exact or approximate solutions to optimization and search problems and can be applied to various data sets. This is done by a processor. Therefore any processor is capable of performing function. It would have been obvious to modify Weinfurter as modified so that the processor can replace the weakest parent sets with a child set in order to provide the strongest or most optimum condition to the user thus improving the hearing fit for the user.

Regarding the recited claim language of the processor adapted to perform a genetic algorithm for replacing one of the plurality of parent sets in the first population

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with the child set thereby forming a second population, the examiner asserts that Weinfurter as modified teaches of using genetic algorithms. It is known in the art that genetic algorithms work off of populations and child sets. It is a matter of design choice as to how the genetic algorithm will work.

MPEP 2114....states that while features of an apparatus may be recited either structurally or functionally, claims <directed to >an< apparatus must be distinguished from the prior art in terms of structure rather than function. Also, a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus" if the prior art apparatus teaches all the structural limitations of the claim. Ex parte Masham, 2 USPQ2d 1647 (Bd. Pat. App. & Inter. 1987).

Watanabe as modified by Weinfurter clearly has the structural limitations of the claim and the intended use of the genetic algorithm

Regarding claim 2, Weinfurter as modified by Watanabe and Holland discloses wherein each parent set of the plurality of parent sets comprises more than one parameter (each parameter set reads on a parent set and each parameter set discloses more than one parameter; Weinfurter; column 6, lines 18-20). All elements of claim 2 are comprehended by the rejection of claim 1.

Regarding claim 3, Weinfurter as modified by Watanabe and Holland discloses wherein the communications link is a wireless link (Weinfurter; wireless data transmission path 24; column 4, lines 50-51).



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Regarding claim 4, Weinfurtner as modified by Watanabe and Holland discloses a memory for storing a hierarchy of the plurality of parent sets. Weinfurtner as modified fails to disclose that the memory is a flash memory. The examiner takes official notice that flash memory was well known in the art at the time of the invention. Flash memory is non-volatile, which means that it does not need power to maintain the information stored in the chip. It would have been obvious to modify Weinfurtner as modified so that the memory is a flash memory for the benefit of providing a hearing aid that uses less power.

Regarding claim 9, Weinfurtner as modified a toggle device for toggling between a first pair of the plurality of parent sets (keys 48 allows the user to select a hearing situation, i.e. parameter set Figure 3; column 5, lines 1-7; column 6, lines 25-32 and 44-47). It is obvious that the toggle device would be able to toggle between a second pair of parent sets from a second population. It would have been obvious to modify Weinfurtner so that the toggle device can toggle between a second pair of parent sets in a second population for the benefit of providing more options to the user.

Regarding claim 10, Weinfurtner as modified by Watanabe and Holland discloses wherein the toggle device toggles between a plurality of pairs of the parent sets (Weinfurtner discloses keys 48 that allow the user to select a hearing situation, i.e. a parameter set, there are 4 parameter sets; when the user chooses a key 48 he is toggling between the plurality of pairs of parent sets; Figure 3; column 5, lines 1-7;

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column 6, lines 25-32 and 41-47), further comprising a processor for converging the plurality of pairs to a single solution. (Watanabe teaches that in the genetic algorithm operations are iteratively performed until each solution vector in the solution vector set P converges to a nearly optimal solution to the problem being solved ,column 2, lines 37-40. Watanabe therefore discloses converging data to a single solution set). All elements of claim 10 are comprehended by the rejection of claim 1.

Regarding claim 11, Weinfurtner, Watanabe and Holland disclose a hearing aid (Weinfurtner; hearing aid 10; column 4, lines 43-45) fitted by the apparatus according to claim 1. (See Weinfurtner, Watanabe and Holland as applied to claim 1).

### ***Allowable Subject Matter***

10. Claims 12-16, 27-35 are allowed.

The following is an examiner's statement of reasons for allowance: Regarding claims 12, 22, 27, 31, 32 and 34 prior art Weinfurtner et al. (US 6,035,050) discloses a hearing aid comprising: a memory having parameters stored ;a toggle device (Figure 3; column 5, lines 1-7); a select indicator (50, Figure 3; column 5, lines 5-8); and a processor (46, Figure 5). Prior art Watanabe et al. (US 6,148,274) discloses an optimization adjusting method that uses a genetic algorithm (column 4, lines 42-65; column 42, lines 8-48; ranking data is implicit to how a genetic algorithm functions). Watanabe discloses using

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genetic algorithm and using mutation and crossover on at least one parent set (Watanabe, column 42, lines 8-48; Figures 67 and 69). Prior art Takagi et al. (US 7,343,021) discloses an optimum solution method, hearing aid fitting apparatus utilizing the optimum solution method and system of optimization adjusting method and apparatus. Prior art Hagen et al. (US 6,888,948) discloses a portable system programming hearing aids. Generally the prior art teaches of using genetic algorithms to provide optimization. Darrel Whitely discloses a genetic algorithm tutorial.

Regarding claim 12, the prior art or combination thereof fails to disclose or make obvious a select indicator for selecting a preferred one of the first and second set in the each of the plurality of pairs; a genetic algorithm for replacing one of the plurality of parent sets in the first population with the child set thereby forming a second population wherein the toggle device toggles between another pair of sets, the another pair being selected from the second population.

Regarding claim 27, the prior art or combination thereof fails to disclose or make obvious the first pair comprising a first and second set and being presented with assistance of the hearing aid; reselecting a first preference between the first and second sets of the first pair; presenting a second pair, the second pair comprising the child set and a third set, the third set being selected from the second population but not being the child set; selecting a second preference between the child set and the third set of the second pair.

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Regarding claim 31, the prior art or combination thereof fails to disclose or make obvious the first pair comprising a first and second set and being presented with assistance of the hearing aid; selecting a first preference between the first and second sets of the first pair; presenting a second pair of sets from the parent sets, the second pair comprising a third and fourth set; selecting a second preference between the third and fourth sets of the second pair; operating on one set of the plurality of parent sets to obtain a child set, the child set being one of a mutation and crossover of the one set, the child set having at least one child parameter; replacing one of the plurality of parent sets of the first population with the child set to form a second population; presenting a third pair of sets, the third pair comprising the child set and a fifth set, the fifth set being selected from the second population but not being the child set; selecting a third preference between the child set and the fifth set; converging on a solution set, the solution set being one of the first, second, third, fourth, fifth and child sets; and updating the initial prescription with one of the at least one parent and child parameters.

Regarding claim 32, the prior art or combination thereof fails to disclose or make obvious the genetic algorithm selecting which of the parent sets becomes the first and second set; indicating a preference to the genetic algorithm between the first and second sets of the first pair; replacing one of the plurality of parent sets of the first population with the child set to form a second population; presenting a second pair, the second pair comprising the child set and a third set, the third set being selected from the second population but not being the child set, the genetic algorithm selecting which set

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of the second population becomes the third set; indicating a second preference to the genetic algorithm between the child set and the third set of the second pair; and converging on a solution set, the solution set being one of the first, second, third and child sets.

Regarding claim 34, the prior art or combination thereof fails to disclose or make obvious the genetic algorithm selecting which of the plurality of parent sets becomes the first and second set; indicating a first preference to the genetic algorithm between the first and second sets of the first pair; presenting a second pair of sets from the parent sets, the second pair comprising a third and fourth set, the genetic algorithm selecting which of the plurality of parent sets becomes the third and fourth sets; indicating a second preference to the genetic algorithm between the third and fourth sets of the second pair; operating on one set of the plurality of parent sets with a genetic algorithm operator to obtain a child set, the child set being one of a mutation and crossover of the one set, the child set having at least one child parameter; replacing one of the plurality of parent sets of the first population with the child set to form a second population; presenting a third pair of sets, the third pair comprising the child set and a fifth set, the fifth set being selected from the second population but not being the child set, the genetic algorithm selecting which set of the second population becomes the fifth set; indicating a third preference to the genetic algorithm between the child set and the fifth set; converging on a solution set, the solution set being one of the first, second, third, fourth, fifth and child sets; and updating the initial setting with one of the at least one parent and child parameters selected from the solution set.

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Therefore, the prior art or combination thereof fails to disclose or make obvious an apparatus for fitting a hearing aid, a hearing aid, a method for fitting a hearing aid as claimed, a method of using a genetic algorithm in a system and a method of perceptually tuning a system using a genetic algorithm as claimed.

Claims 13-16, 28-30, 33 and 35 are allowed due to dependency on claims 12,27,32 and 34.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DEVONA E. FAULK whose telephone number is (571)272-7515. The examiner can normally be reached on 8 am - 5 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Devona E. Faulk/  
Primary Examiner, Art Unit 2614